ABSTRACT

The present invention provides a system and method for use in obtaining precise positional information relating to one or more points. The points may comprise key locations on a large structure allowing for the geometry of the structure to be assessed based on the positional information. In one embodiment, a high accuracy angular resolution and measurement system includes a laser beam source (110), a bi-directional acousto-optic modulator (112), and an optical detector (104). The position of the optical detector (104) is determinable from deflection angles (120, 122) of the laser beam (106) when the laser beam (106) is deflected by the bi-directional acousto-optic modulator (112) in a direction corresponding to one of a plurality of illumination locations (140) coinciding with the position of the optical detector (104) within an illumination region (142) defined by the illumination locations (140).